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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,127	07/15/2003	Marvin Glenn Wong	10020307-1	7853

7590 05/20/2008
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2841

MAIL DATE	DELIVERY MODE
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05/20/2008

PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARVIN GLENN WONG,
JOHN F. CASEY and LING LIU

Appeal 2007-3959
Application 10/620,127¹
Technology Center 2800

Decided: May 20, 2008

Before FRED E. MCKELVEY, *Senior Administrative Patent Judge*,
RICHARD E. SCHAFER and SALLY C. MEDLEY, *Administrative Patent
Judges*.

MEDLEY, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application for patent filed 15 July 2003.

The real party in interest is Agilent Technologies, Inc.

A. Statement of the Case

This is an appeal under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1, 3-8, 21 and 23-28². We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Tominaga	JP 401245547 A	Sept. 29, 1989
Burns	3,729,816	May 01, 1973
Leigh	5,986,983	Nov. 16, 1999
Middlehurst	6,604,967	Aug. 12, 2003

Claims 1 and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tominaga.

Claims 1, 3-4, 21 and 23-24 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Burns.

Claims 5-8 and 25-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns and Middlehurst or Burns and Leigh.

BACKGROUND

The invention is related to a method for producing an air bridge for circuitry crossovers. With reference to the drawings, a first circuit trace **102** is deposited on a substrate **100**. A sacrificial material **104** is deposited over at least a portion of the circuit trace **102**. A crossover circuit trace **106** is deposited or patterned over the sacrificial material **104**. Last, the sacrificial material **104** is thermally decomposed to produce an air bridge **108** [Fig. 3]

² Claim 2 was withdrawn by the Examiner in the Non-Final Rejection mailed 07 April 2004 based on Applicants' Response to the Restriction Requirement received 19 March 2004. Claims 9-20 were cancelled by amendment filed 12 July 2004. Claim 22 was withdrawn by the Examiner in the Final Rejection mailed 20 Oct. 2004 as not being drawn to the elected species.

for the crossover circuit trace **106** to crossover circuit trace **102**. (Abs., Spec. 1-5 and **figs. 1-3**).

Figure 3 from the Application is reproduced below.

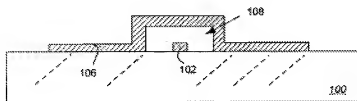


Figure 3 depicts a substrate, a circuit trace and a crossover circuit trace.

B. Issue

The first issue before us is whether Applicants have shown that the Examiner erred in finding that claims 1 and 21 are anticipated under 35 U.S.C. § 102(b) by Tominaga?

The second issue before us is whether Applicants have shown that the Examiner erred in finding that claims 1, 3-4, 21 and 23-24 are anticipated under 35 U.S.C. § 102(b) by Burns and determining that claims 5-8 and 25-28 are unpatentable over Burns and Middlehurst or Burns and Leigh?

For the reasons that follow, Applicants have failed to sufficiently show that the Examiner erred in (1) finding that claims 1 and 21 are anticipated by Tominaga, (2) finding claims 1, 3-4, 21 and 23-24 are anticipated by Burns and (3) determining that claims 5-8 and 25-28 are unpatentable over Burns and Middlehurst or Burns and Leigh.

C. Findings of Facts (“FF”)

The record supports the following findings of facts as well as any other findings of fact set forth in this opinion by at least a preponderance of the evidence.

1. Applicant’s claims 1, 3-8, 21 and 23-28 are the subject of this appeal.
2. Claims 1 and 21 are independent.

3. Claims 3-8 directly or indirectly depend on claim 1.
4. Claims 23-28 directly or indirectly depend on claim 21
5. Claims 1 and 21 stand or fall together with respect to the rejection under 35 U.S.C. § 102(b) as anticipated by Tominaga (Br. 10-12).
6. Claims 1, 3-4, 21 and 23-24 stand or fall together with respect to the rejection under 35 U.S.C. § 102(b) as anticipated by Burns.
7. Claims 5-8 and 25-28 stand or fall together with the rejection of claims 1, 3-4, 21 and 23-24 as anticipated by Burns since Applicants did not argue these dependent claims separate and apart from the arguments presented with respect to claims 1 and 21 (Br. 12-14).
8. Claims 1 and 21 are representative and are as follows:
 1. An air bridge produced by:
 - depositing one or more circuit [102] components on a substrate [100];
 - depositing a sacrificial material [104] over at least a portion of the circuit components;
 - depositing a crossover circuit trace [106] of uniform composition over the sacrificial material, the crossover circuit trace i) conforming to the sacrificial material, and ii) crossing over the circuit components; and
 - thermally decomposing the sacrificial material.
 21. An air bridge produced by:
 - depositing one or more circuit components on a substrate;
 - depositing a sacrificial material over at least a portion of the circuit components;
 - depositing a crossover circuit trace of uniform composition over the sacrificial material, the crossover circuit trace i) conforming to the sacrificial material, ii) crossing over the circuit components; and iii) being directly supported by the substrate on opposite sides of the sacrificial material; and
 - thermally decomposing the sacrificial material.

9. The Examiner found that claims 1 and 21 are product-by-process claims (Final Rejection 2-5 and Ans. 4-5, 7).
10. The Examiner found that Applicants' claimed process steps define an air bridge having one circuit component on a substrate, a crossover circuit trace of uniform composition crossing over the circuit component (Final Rejection 2, 4 and Ans. 4-6).
11. The Examiner explains that the sacrificial layer will not be present in the product of claim 1 because it is deposited and then decomposed (Final Rejection 2, 4 and Ans. 4, 6).
12. The Examiner found that Tominaga describes an air bridge having one circuit component **2** on a substrate **1** and a crossover circuit trace **4** of uniform composition crossing over the circuit component **2** (Final Rejection 3, Ans. 4 and Tominaga: **fig. 3**).

Figure 3 from Tominaga is reproduced below.

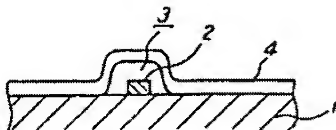


Figure 3 depicts a substrate, a circuit trace and a crossover circuit trace.

13. The Examiner also explains that case law, particularly *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985), supports the principle that a process limitation cannot serve to patentably distinguish a product over the prior art when the product is the same as, or obvious over the prior art (Final Rejection 2, 4 and Ans. 4, 6).
14. The Examiner found that Burns describes an air bridge having one circuit component **23** on a substrate **21** and a crossover circuit trace **29**

of uniform composition crossing over the circuit component 23 (Final Rejection 4-5, Ans. 6 and Burns: **fig. 5**).

Figure 5 from Burns is reproduced below.

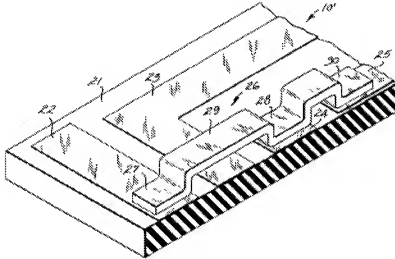


Figure 5 depicts a substrate, a circuit trace and a crossover circuit trace.

15. Applicants rely on *In re Garnero*, 412 F.2d 276, 279 (CCPA, 1979) for noting that “etched” is capable of construction as a structural limitation (Br. 11).
16. Applicants suppose that the term “etching” has been found to impart a structural limitation because of the degree of precision with which etching removes material to form a final product (Br. 11).
17. Applicants argue that their deposition and thermal decomposition of the sacrificial material to form an air bridge imparts a certain degree of precision to a resultant air bridge (Br. 11).
18. Applicants argue that Applicants can precisely define the cross-section of an air bridge (Br. 12).
19. Applicants argue that the degree of precision with which Tominaga may define an air bridge is unknown (Br. 12)

20. Applicants argue that it is merely speculation that Tominaga can achieve the same degree of precision offered by Appellants air bridge production process using a sacrificial material that precisely predefines the shape of a resultant cross-over circuit trace (Br. 12).
21. Applicants argue that although the manufacturing of Burns air bridge of Burns offers *some* degree of precision, the extra steps involved in making Burns' product presents alignment, bonding and tolerance issues which are mitigated or eliminated by Applicants' claimed products (Br. 14).
22. Applicants argue that the tolerances implied by their claimed process distinguish their product from Burns' product (Br. 14).

D. Principles of Law

"If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985).

"[W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 708 (Fed Cir. 1990).

"Where a product-by-process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product." *In re Marosi*, 710 F.2d 799, 803 (Fed. Cir. 1983).

Argument of counsel cannot take the place of evidence lacking in the record. *Meitzner v. Mindick*, 549 F.2d 775, 782 (CCPA 1977); *see also In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

E. Analysis

Claims 1 and 21 anticipated by Tominaga

Claims 1 and 21 stand or fall together with respect to the rejection under 35 U.S.C. § 102(b) as anticipated by Tominaga (FF³ 5). We focus our analysis on independent claim 1 since claim 21 includes all the same limitations as claim 1 (FF 8).

The Examiner found that claims 1 and 21 are product-by-process claims (FF 9). The Examiner found that the recited process steps define an air bridge having one circuit component on a substrate, a crossover circuit trace of uniform composition crossing over the circuit component (FFs 10-11). The Examiner found that Tominaga describes an air bridge having one circuit component **2** on a substrate **1** and a crossover circuit trace **4** of uniform composition crossing over the circuit component **2** (FF 12). The Examiner explained that case law, particularly *In re Thorpe*, supports the principle that a process limitation cannot serve to patentably distinguish a product over the prior art when the product is the same as, or obvious over the prior art (FF 13).

Instead of addressing the holding of *In re Thorpe*, Applicants rely on dicta from *In re Garnero* to support their arguments. Applicants argue that their deposition and thermal decomposition of the sacrificial material to form an air bridge imparts a certain degree of precision to the resultant air bridge (FFs 15-20).

However, once the Examiner has rejected a product by process claim based on a prior art product that appears identical to Applicant's product, the

³ FF denotes Finding of Fact.

burden is on Applicants to provide evidence establishing an unobvious difference between the claimed product and the prior art product. Applicants have not met their burden. Even if an enhanced degree of precision imparted to a product during a manufacturing process could be sufficient to establish a lack of anticipation or non-obviousness, Applicants have not offered persuasive evidence to support their assertion that there is a difference in this case. Argument of counsel cannot take the place of evidence lacking in the record. Nor do claims 1 or 21 contain any limitation which would serve to distinguish the claimed subject matter from that of the prior art.

For all these reasons, we find that Applicants have failed to show that the Examiner has erred in finding that claims 1 and 21 are anticipated by Tominaga.

Claims 1, 3-4, 21 and 23-24 anticipated by Burns

Claims 1, 3-4, 21 and 23-24 stand or fall together with respect to the rejection under 35 U.S.C. § 102(b) as anticipated by Burns (FF 6). Again, we focus our analysis on independent claim 1 since claim 21 includes all the same limitations as claim 1 (FF 8). Again, the Examiner found that claims 1 and 21 are product-by-process claims (FF 9).

As explained before, the Examiner found that the recited process steps define an air bridge having one circuit component on a substrate, a crossover circuit trace of uniform composition crossing over the circuit component (FFs 10-11). The Examiner also found that Burns describes an air bridge having one circuit component **23** on a substrate **21** and a crossover circuit trace **29** of uniform composition crossing over the circuit component **23** (FF 14). The Examiner again explained that case law supports the principle

that a process limitation cannot serve to patentably distinguish a product over the prior art when the product is the same as, or obvious over the prior art (FF 13).

Applicants again rely on dicta from *In re Garnero*, 412 F.2d 276 (CCPA 1979) to support their argument that the tolerances implied by their own process distinguish their product from Burns' product (FFs 15-18 and 21-22). Applicants assert that the extra steps involved in making Burns' product presents alignment, bonding and tolerance issues that are mitigated or eliminated by Applicants' claimed product (FF 21).

Applicants have not met their burden to provide evidence establishing a difference between the claimed product and the prior art product. Even if tighter tolerances imparted to a product during manufacturing could be sufficient to establish lack of anticipation or non-obviousness, Applicants have not offered persuasive evidence to support their assertion.

For all these reasons, we find that Applicants have failed to sufficiently show that the Examiner has erred in finding that claims 1, 3-4, 21 and 23-24 are anticipated by Burns.

Claims 5-8 and 25-28 obvious over Burns and Middlehurst or Burns and Leigh

Claims 5-8 and 25-28 are directly or indirectly dependent on claims 1 and 21 (FFs 3-4). The rejection of claims 5-8 and 25-28 stand or fall together with the rejection of claims 1, 3-4, 21 and 23-24 as anticipated by Burns because Applicants did not argue the rejection of claims 5-8 and 25-28 separate and apart from the arguments presented with respect to claims 1 and 21 (FF 7). For the same reasons discussed above in addressing the Examiner's rejection of claims 1, 3-4, 21 and 23-24, we find that Applicants

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have failed to sufficiently show that the Examiner erred in determining that claims 5-8 and 25-28 are unpatentable over Burns and Middlehurst or Burns and Leigh.

F. Decision

Upon consideration of the record, and for the reasons given, the Examiner's rejections of (1) claims 1 and 21 as anticipated under 35 U.S.C. § 102(b) by Tominaga, (2) claims 1, 3-4, 21 and 23-24 as anticipated under 35 U.S.C. § 102(b) by Burns, and (3) claims 5-8 and 25-28 under 35 U.S.C. § 103(a) as unpatentable over Burns and Middlehurst or Burns and Leigh are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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LB